

NO. 235

AWS D17.1.2001
QUALIFICATION TEST RECORD

Name: Barclay Elliott
Job number: 59780
Part number: D206-642-541
Description: 20G skid tube
Welding Process: Tig Mig
Base material: Aluminum
Current: AC DC

TEST REQUIREMENTS AND RESULTS

Visual: pass fail
Penetration: pass fail

UNACCEPTABLE

Cracks: pass fail
Undercut: pass fail
Pin holes: pass fail
Overlap (cold lap): pass fail
Porosity (surface): pass fail
Coloration: pass fail

Qualifier J.D.L Date of Test Coupon 10.07.01

Welder Barclay Elliott Date of Test Coupon 10.07.01

The above named individual is qualified in accordance with AWS D17.1.2001 to weld

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
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Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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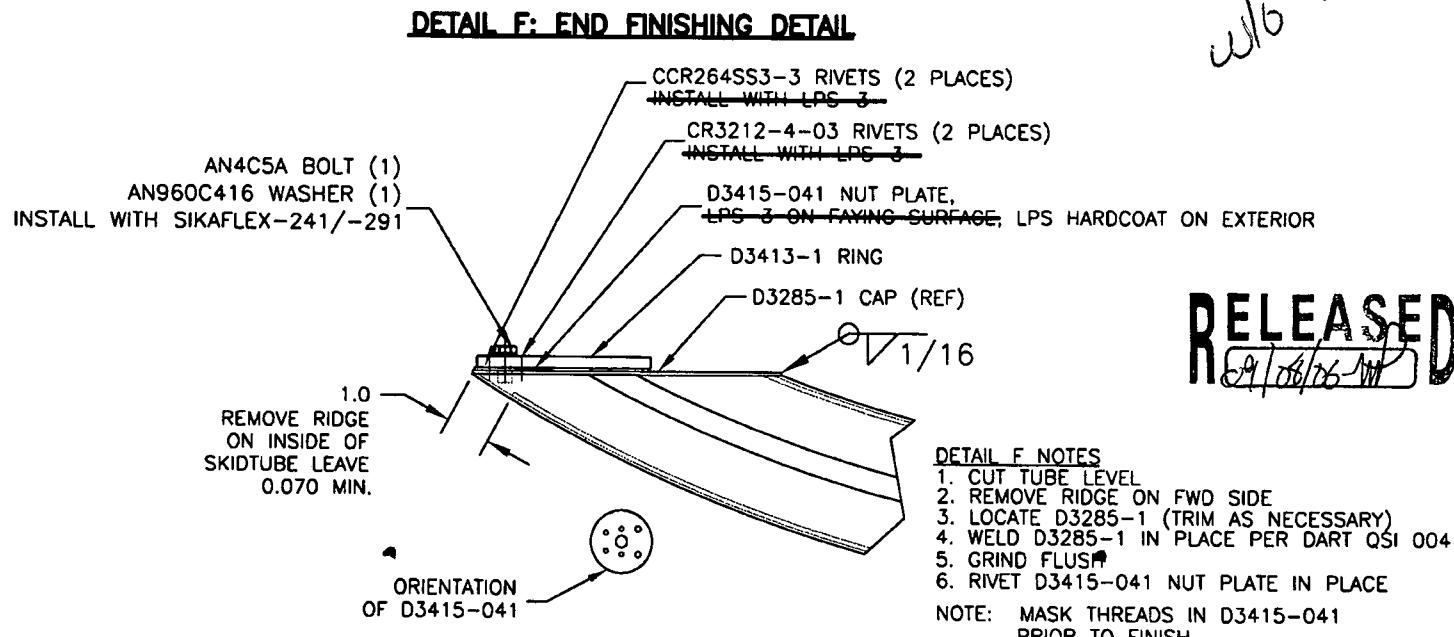
NOTE: Date & initial all entries

| | | | | | | |
|----------------------|----------------------------|-----------------|--|-------------------------|---------------------------|--------------|
| DRAWING NO. D3274 | TITLE SKIDTUBE ASSEMBLY | REV. D | DART AEROSPACE USA, INC ENGINEERING ORDER | D.E.O. NO. D3274-D-1 | SHEET NO. SHEET 1 OF 1 | SCALE NTS |
| DRAWN CP | CHECKED | MFG. APPR. M | APPROVED | MAP | DE APPR. # | |
| DATE 09.06.17 | DATE 09.06.23 | DATE 09/06/23 | DATE 09/06/23 | DATE 09/06/23 | DATE 09.06.23 | |

LPS-3 IS NO LONGER USED DURING ASSEMBLY OF SKIDTUBE.

AMEND NOTE 8: "~~SPRAY INSIDE OF TUBE WITH A COAT OF LPS LABORATORIES 'LPS-3' AFTER FINISH AND INSTALLATION OF INSERTS.~~
~~COAT ALL EXPOSED FASTENERS WITH LPS LABORATORIES 'LPS PROCYON' AFTER FINAL ASSEMBLY, CLEAN EXCESS OFF~~
~~POWDER COATING WITH MEK DEGREASER.~~"

AMEND DETAIL F AS SHOWN:



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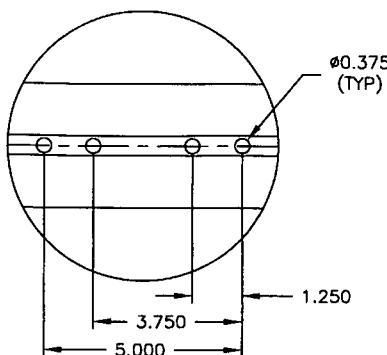
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Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

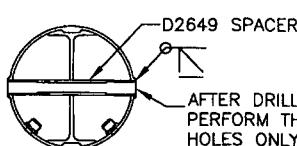
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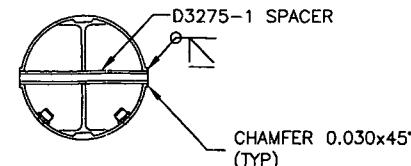
DETAIL A: DRILL DETAIL



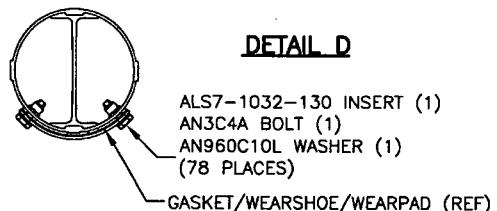
DETAIL B FOR $\phi 0.375$ HOLES ONLY



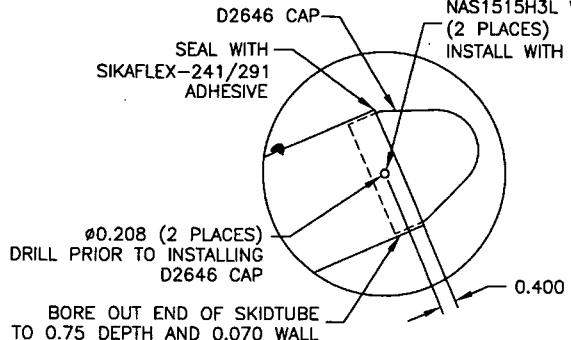
DETAIL C FOR $\phi 0.313$ HOLES ONLY



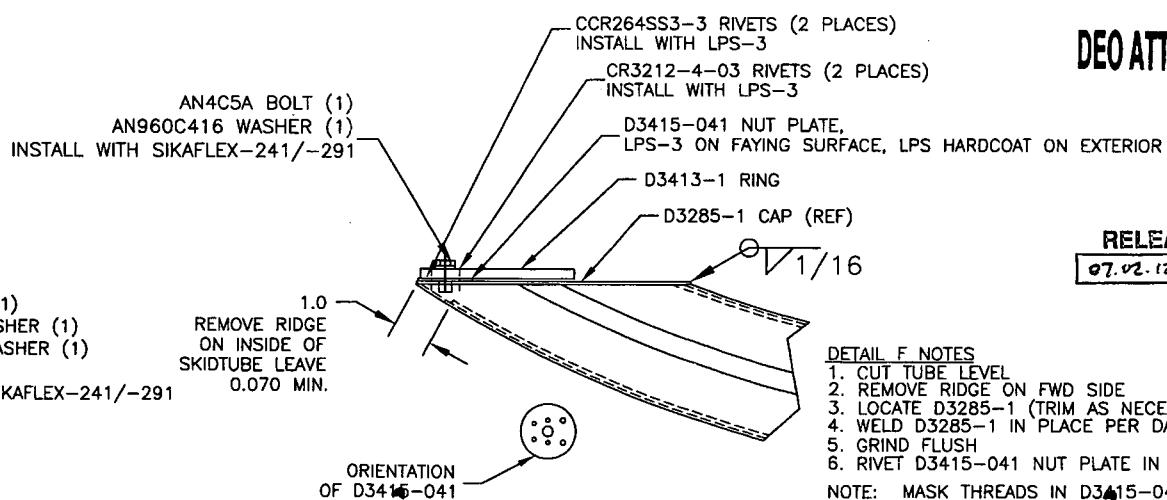
DETAIL D



DETAIL E AN3C4A BOLT (1) AN960C10L WASHER (1) NAS1515H3L WASHER (1) (2 PLACES) INSTALL WITH SIKAFLEX-241/-291



DETAIL F: END FINISHING DETAIL



DET ATTACHED

RELEASED

07.02.12 #

DETAIL F NOTES

1. CUT TUBE LEVEL
2. REMOVE RIDGE ON FWD SIDE
3. LOCATE D3285-1 (TRIM AS NECESSARY)
4. WELD D3285-1 IN PLACE PER DART QSI 004
5. GRIND FLUSH
6. RIVET D3415-041 NUT PLATE IN PLACE

NOTE: MASK THREADS IN D3415-041 PRIOR TO FINISH

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DESIGN

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DRAWN BY

PH

DART

DART AEROSPACE USA, INC.

PORT HUDDLE, WA

REV. D

#

DRAWING NO.

D3274

SHEET 4 OF 4

#

DATE

06.12.19

TITLE

SKIDTUBE ASSEMBLY

13

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
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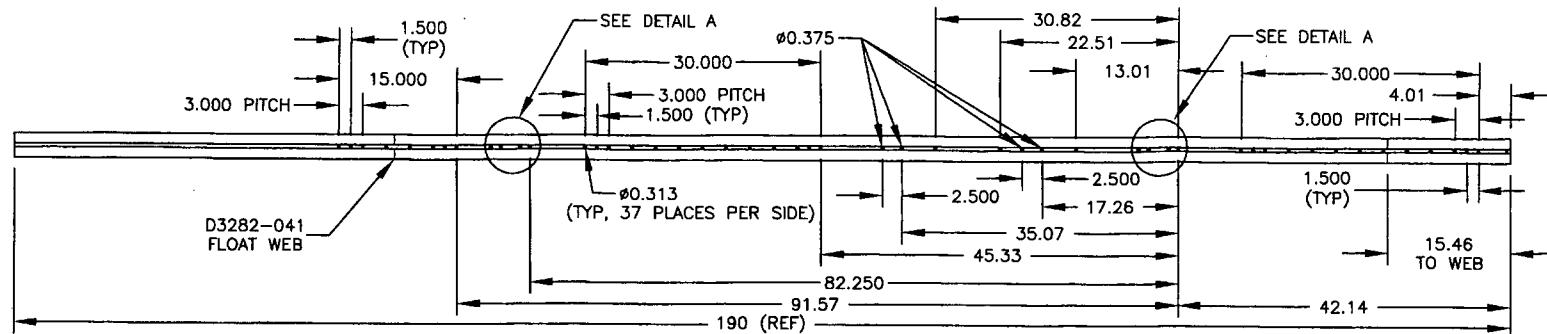
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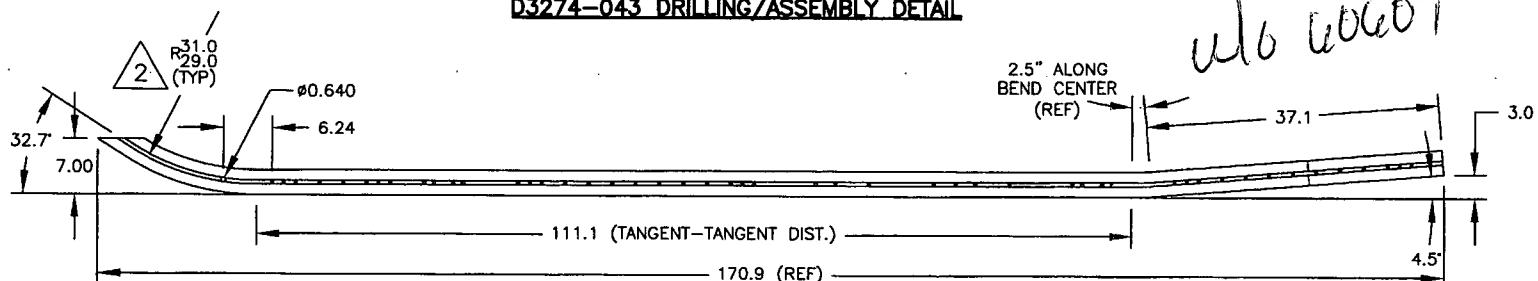
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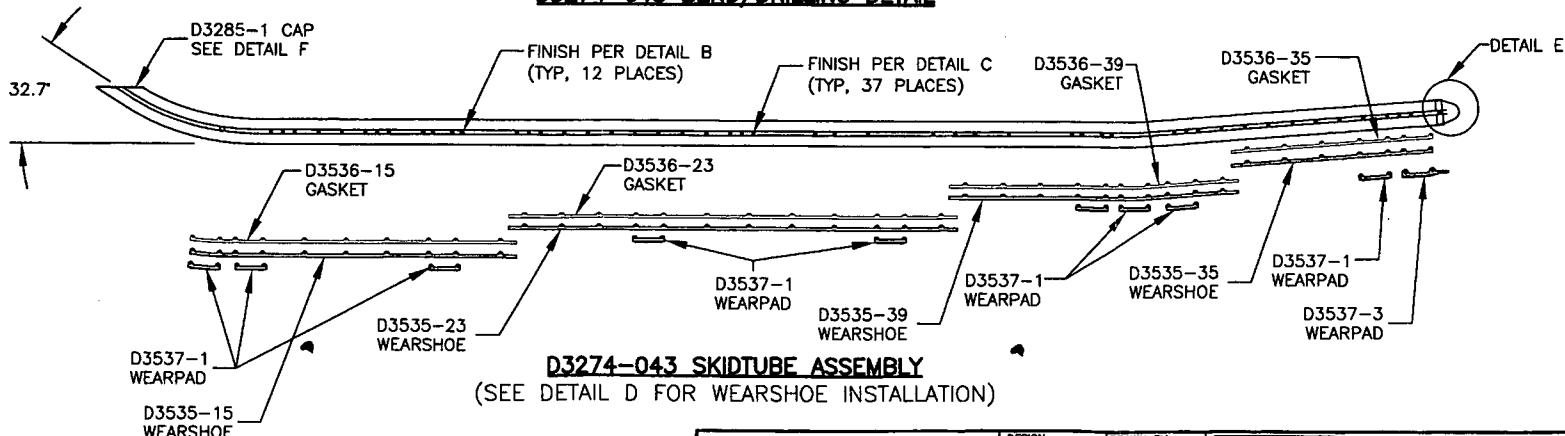
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D3274-043 DRILLING/ASSEMBLY DETAIL



D3274-043 BEND/DRILLING DETAIL



D3274-043 SKIDTUBE ASSEMBLY
(SEE DETAIL D FOR WEARSHOE INSTALLATION)

RELEASED

07.02.12 ~~✓~~

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| | | DATE 06.12.19 | TITLE SKIDTUBE ASSEMBLY | | SHEET 3 OF 4 | |
| | | | | | SCALE 1:15 | |

| W/O: | | WORK ORDER CHANGES | | | | | |
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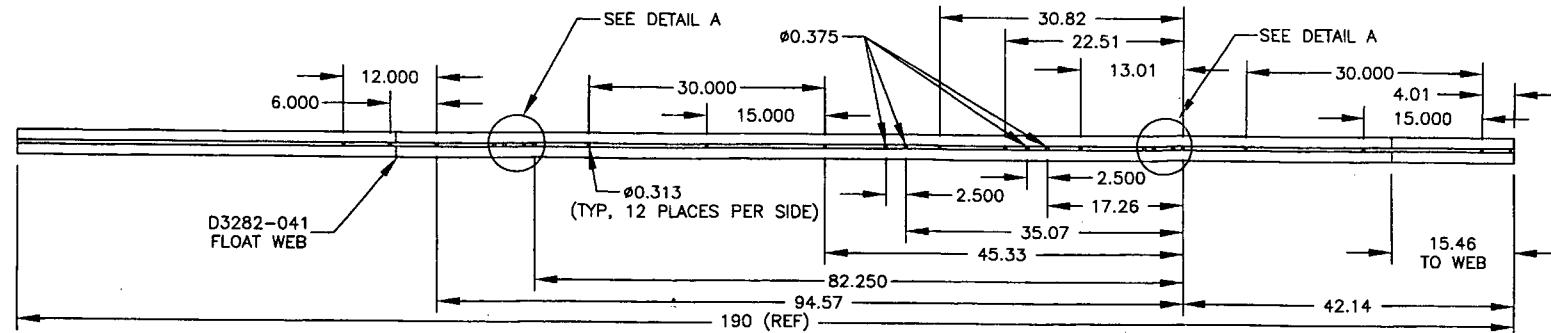
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Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

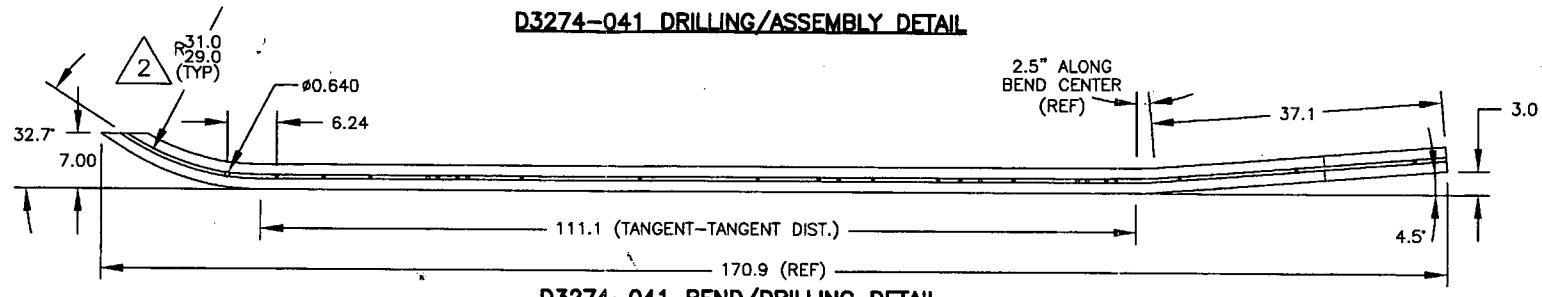
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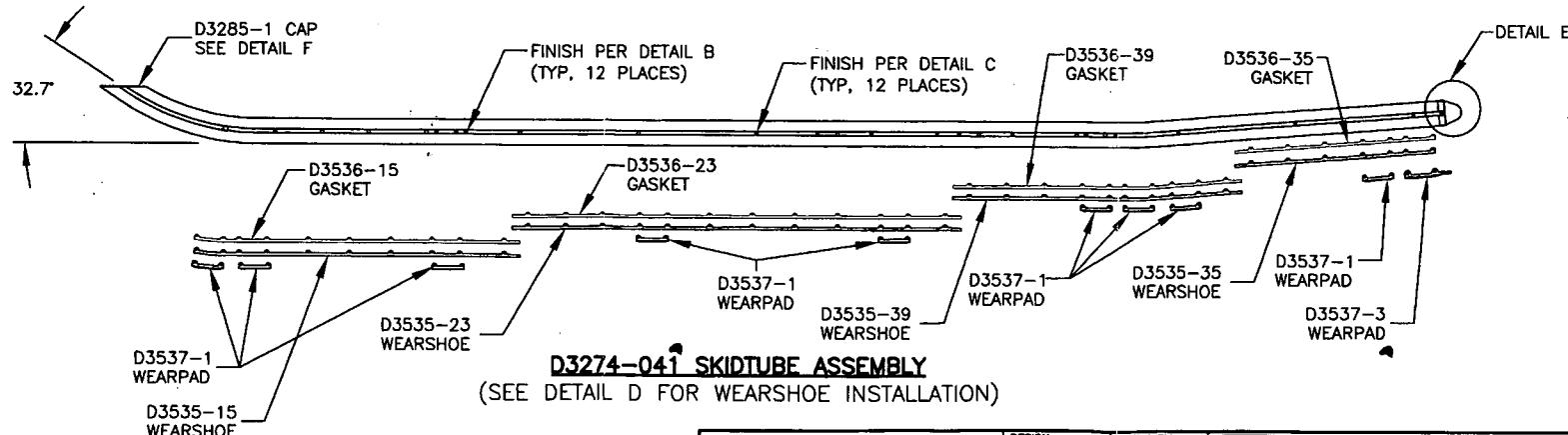
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D3274-041 DRILLING/ASSEMBLY DETAIL



D3274-041 BEND/DRILLING DETAIL



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07.02.12

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| CHECKED | APPROVED | | | DRAWING NO. | REV. D |
| | | | | D3274 | SHEET 2 OF 4 |
| DATE | | TITLE | | | 1:15 |
| 06.12.19 | | SKIDTUBE ASSEMBLY | | | |

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
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Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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NOTE: Date & initial all entries

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DART

NO. 0810-715

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07.02.12

DEO ATTACHED

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| CP | PH | |
| CHECKED | APPROVED | DRAWING NO. D3274 |
| | | REV. D SHEET 1 OF 4 |
| DATE | TITLE | SCALE |
| 06.12.19 | SKIDTUBE ASSEMBLY | NTS |
| A | 04.03.15 | NEW ISSUE |
| B | 04.08.09 | MOVE SADDLE HOLE: 42.14 WAS 42.76 |
| C | 05.03.16 | ADD -043; NEW INSERTS |
| D | 06.12.19 | NEW INSERTS, SS WEARSHOE + GASKET |

| Qty -041 | Qty -043 | Part Number | Description |
|-------------|-------------|---------------|---|
| X | | D3274-041 | SKIDTUBE ASSEMBLY |
| | X | D3274-043 | SKIDTUBE ASSEMBLY |
| 1 | 1 | D2600-1-240 | EXTRUSION |
| 1 | 1 | D2646 | AFT CAP |
| 12 | 12 | D2649 | CROSS BOLT SPACER |
| 12 | 37 | D3275-1 | CROSS BOLT SPACER |
| 1 | 1 | D3282-041 | FLOAT WEB |
| 1 | 1 | D3285-1 | CAP |
| 1 | 1 | D3413-1 | RING |
| 1 | 1 | D3415-041 | NUT PLATE |
| 1 | 1 | D3535-15 | WEARSHOE |
| 1 | 1 | D3535-23 | WEARSHOE |
| 1 | 1 | D3535-35 | WEARSHOE |
| 1 | 1 | D3535-39 | WEARSHOE |
| 1 | 1 | D3536-15 | GASKET |
| 1 | 1 | D3536-23 | GASKET |
| 1 | 1 | D3536-35 | GASKET |
| 1 | 1 | D3536-39 | GASKET |
| 9 | 9 | D3537-1 | WEARPAD |
| 1 | 1 | D3537-3 | WEARPAD |
| 78 | 78 | ALS7-1032-130 | INSERT (or AKS4-1032-130, ALS4-1032-130, AELS-1032-130) |
| 80 | 80 | AN3C4A | BOLT |
| 1 | 1 | AN4C5A | BOLT |
| 1 | 1 | AN960C416 | WASHER |
| 80 | 80 | AN960C10L | WASHER |
| 2 | 2 | CCR264SS3-3 | RIVET |
| 2 | 2 | CR3212-4-03 | RIVET |
| 2 | 2 | NAS1515H3L | WASHER |

GENERAL NOTES:

1. TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
2. DAMAGE TOLERANCE ON FWD BEND:
THERE SHOULD BE NO VISIBLE WRINKLES IN THE BEND FROM THE GROUND TO A HEIGHT OF 7 INCHES ABOVE THE GROUND. IT IS ACCEPTABLE TO POLISH OUT GOUGES UP TO 0.020 DEEP IN THE BENT PORTION OF THE TUBE. A MAXIMUM REDUCTION IN DIAMETER OF 0.150" IS ACCEPTABLE IN THE BENT PORTION OF THE TUBE.
3. ALL HOLES DRILLED ON CENTERLINES.
4. BOND D3282-041 FLOAT WEB INTO D3274-1/3 OUTER TUBE WITH NON-STRUCTURAL SIKAFLEX-241/291 ADHESIVE PER DART QSI 015. ENSURE HOLES LINE-UP.
5. WELDING TO BE DONE PER DART QSI 004.
6. FINISH: - ACID ETCH, ALODINE ASSEMBLY PER DART QSI 005 4.1
- POWDER COAT WHITE (REF. 4.3.5.1) PER DART QSI 005 4.3
7. DRILL Ø0.297 HOLES FOR ALS7-1032-130 INSERTS USING DT3274-1T2 BEFORE FINISH. INSTALL ALS7-1032-130 INSERTS AFTER FINISH. SEAL WEARSHOE BOLTS WITH SIKAFLEX -241/-291.
8. SPRAY INSIDE OF TUBE WITH A COAT OF LPS LABORATORIES "LPS-3" AFTER FINISH AND INSTALLATION OF INSERTS. COAT ALL EXPOSED FASTENERS WITH LPS LABORATORIES "LPS PROCYON" AFTER FINAL ASSEMBLY, CLEAN EXCESS OFF POWDER COATING WITH MEK DEGREASER.

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NOTE: Date & initial all entries

Picklist Print

Page 7

Thursday, July 15, 2010 10:24:12 AM

Work Order ID: 60607



Parent Item: D206-642-541



Parent Item Name: Replacement Skidtube

Start Date: 7/15/2010

Required Date: 7/22/2010

Start Qty: 1.00

Required Qty: 1.00

AN4C5A



Purchased

No

270

Each

513.0000

1

1



41 10109109

BOLT

| <u>Location</u> | <u>Loc Qty</u> | <u>Loc Code</u> |
|-----------------|----------------|-----------------|
| ST346 | 513 | |
| 110552 | 13 | |
| H2243 | 500 | |

D2646



Manufactured

No

270

Each

94.0000

1



41 10109109

Aft Cap

| <u>Location</u> | <u>Loc Qty</u> | <u>Loc Code</u> |
|-----------------|----------------|-----------------|
| FP-4 | 85 | |
| 57332 | 85 | |
| FP6 | 9 | |
| 52663 | 9 | |

D3413-1



Manufactured

No

270

Each

31.0000

1



41 10109109

Ring

| <u>Location</u> | <u>Loc Qty</u> | <u>Loc Code</u> |
|-----------------|----------------|-----------------|
| ST473 | 31 | 36 1322 |
| 51586 | 1 | |
| 53446 | 23 | |
| 58524 | 7 | |

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NOTE: Date & initial all entries

Picklist Print

Thursday, July 15, 2010 10:24:12 AM

Page 6

Work Order ID: 60607



Parent Item: D206-642-541



Parent Item Name: Replacement Skidtube

Start Date: 7/15/2010

Required Date: 7/22/2010

Start Qty: 1.00

Required Qty: 1.00

AN960C10L

NAS1149C0332
R

Purchased

No

270

Each

0.0000

80

80

M115000



x80 81 10/04/08

washer

AN960C416

NAS1149C0463
R

Purchased

No

270

Each

113.0000

1

1



M1 10/04/08

washer

| <u>Location</u> | <u>Loc Qty</u> | <u>Loc Code</u> |
|-----------------|----------------|-----------------|
|-----------------|----------------|-----------------|

ST346

113

100993

113

81

270

Each

1,033.000

2

2



M1 10/04/08

D3672-1

Manufactured

No

| <u>Location</u> | <u>Loc Qty</u> | <u>Loc Code</u> |
|-----------------|----------------|-----------------|
|-----------------|----------------|-----------------|

ST077

1033

51674

33

82

52505

1000

82

270

Each

1,559.000

80

80



M1 10/04/08

AN3C4A

Purchased

No

| <u>Location</u> | <u>Loc Qty</u> | <u>Loc Code</u> |
|-----------------|----------------|-----------------|
|-----------------|----------------|-----------------|

ST350

1559

114103

501

80

114108

14

80

114416

12

80

114523

2

80

114859

30

80

114941

1000

80

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
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Page 5

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Work Order ID: 60607



Parent Item: D206-642-541



Parent Item Name: Replacement Skidtube

Start Date: 7/15/2010

Required Date: 7/22/2010

Start Qty: 1.00

Required Qty: 1.00

D3535-39



Manufactured No

270

Each

8.0000

1

1

Jul 10 09 08

Wearshoe

| <u>Location</u> | <u>Loc Qty</u> | <u>Loc Code</u> |
|-----------------|----------------|-----------------|
|-----------------|----------------|-----------------|

FP18 8

58214 8

D3535-23



Manufactured No

270

Each

5.0000

1

y1

Jul 10 09 08

Wearshoe

| <u>Location</u> | <u>Loc Qty</u> | <u>Loc Code</u> |
|-----------------|----------------|-----------------|
|-----------------|----------------|-----------------|

FP21 5

57730 13 60864 5

D3537-3



Manufactured No

270

Each

20.0000

1

y1

Jul 10 09 08

Wearpad

| <u>Location</u> | <u>Loc Qty</u> | <u>Loc Code</u> |
|-----------------|----------------|-----------------|
|-----------------|----------------|-----------------|

FP17 4

57512 4

D3537-1



Manufactured No

270

Each

44.0000

9

x1

9

Jul 10 09 08

Wearpad

| <u>Location</u> | <u>Loc Qty</u> | <u>Loc Code</u> |
|-----------------|----------------|-----------------|
|-----------------|----------------|-----------------|

FP 1

55465 1

FP17 43

57713 3

59593 40

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|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
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| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
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| | | | | | | | | |
| | | | | | | | | |

NOTE: Date & initial all entries

Picklist Print

Page 4

Thursday, July 15, 2010 10:24:12 AM

Work Order ID: 60607



Parent Item: D206-642-541



Parent Item Name: Replacement Skidtube

Start Date: 7/15/2010

Required Date: 7/22/2010

Start Qty: 1.00

Required Qty: 1.00

D3536-23



Manufactured

No

270

Each

6.0000

1

1

HL 10109108

Gasket

D3536-35



Manufactured

No

270

Each

11.0000

1

1

HL 10109108

Gasket

D3536-39



Manufactured

No

270

Each

21.0000

1

1

HL 10109108

Gasket

D3535-15



Manufactured

No

270

Each

10.0000

1

1

HL 10109108

Wearshoe

D3535-35



Manufactured

No

Location

FP18

59236

Loc Qty

10

10

Loc Code

1340232

1

1

HL 10109108

Wearshoe

Location

FP018

59237

Loc Qty

7

7

Loc Code

1340232

1

HL 10109108

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
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NOTE: Date & initial all entries

Picklist Print

Page 3

Thursday, July 15, 2010 10:24:12 AM

Work Order ID: 60607



Parent Item: D206-642-541



Parent Item Name: Replacement Skidtube

Start Date: 7/15/2010

Required Date: 7/22/2010

Start Qty: 1.00

Required Qty: 1.00

CCR264SS3-3



Purchased No

250

Each

\$40.0000

2

2



HL 10/09/08

Cherry Rivet

| <u>Location</u> | <u>Loc Qty</u> | <u>Loc Code</u> |
|-----------------|----------------|-----------------|
| ST311 | 540 | |
| 112314 | 4 | |
| 113539 | 60 | |
| 113973 | 476 | X2 |

ALS4-1032-130



Purchased No

250

Each

4,506.000

78

78



HL 10/09/08

Insert

| <u>Location</u> | <u>Loc Qty</u> | <u>Loc Code</u> |
|-----------------|----------------|-----------------|
| PKG11 | 4190 | |
| 114723 | 4190 | X78 |
| ST282 | 277 | |
| 110511 | 38 | |
| 114407 | 239 | |
| ST381 | 39 | |
| 114654 | 39 | |

D3536-15



Manufactured No

270

Each

13.0000

1

1



HL 10/09/08

Gasket

| <u>Location</u> | <u>Loc Qty</u> | <u>Loc Code</u> |
|-----------------|----------------|-----------------|
| FP | 6 | |
| 56055 | 6 | |
| FP11 | 7 | |
| 59238 | 7 | X1 |

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
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NOTE: Date & initial all entries

Picklist Print

Page 2

Thursday, July 15, 2010 10:24:12 AM

Work Order ID: 60607



Parent Item: D206-642-541



Parent Item Name: Replacement Skidtube

Start Date: 7/15/2010

Required Date: 7/22/2010

Start Qty: 1.00

Required Qty: 1.00

D2649 Manufactured No 190 Each 69.0000 1 1



Cross Bolt Spacer



D3275-1 Manufactured No 190 Each 17.0000 12 12



Crossbolt Spacer



CR3212-4-03 Purchased No 250 Each 3,739.000 2 2



Cherry Rivet



D3415-041 Manufactured No 250 Each 61.0000 1 1



Nut Plate



Location Loc Qty Loc Code

ST311 3739
111359 5
112314 30
114436 1142
114450 564
114859 1998

X2

1

1

1

1

Location Loc Qty Loc Code

ST056 61
33842 61

X1

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
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| | | | | | | | | |

NOTE: Date & initial all entries

Picklist Print

Page 1

Thursday, July 15, 2010 10:24:12 AM

Work Order ID: 60607



Parent Item: D206-642-541



Parent Item Name: Replacement Skidtube

Start Date: 7/15/2010

Required Date: 7/22/2010

Start Qty: 1.00

Required Qty: 1.00

Comments:

IPP Rev:B 05.09.23 □ Revised per D206-642 Rev. J □ KJ/JLM
IPP Rev:C 07-02-23 Added SS Wearplates & Gaskets JLM □
IPP Rev:D 07-12-06 replace NAS1515H3L to D3672-1 DD
IPP Rev:E 08-04-17 as per PAR 08-015 DD verified by:EC
IPP Rev:F 08-06-02 add comment DD verified by:EC
IPP Rev:G 08-10-09 revise details DD verified by:EC

| Component Item ID/ Item Name | Replacement Item ID | Mfg/ Purch | Bin Item | Primary Location | Last Location | Route Seq ID | Unit of Measure | Qty on Hand | Qty per Kit | Total Qty | Qty Issued | Date Issued | Status |
|---------------------------------|------------------------|---------------|-------------|---------------------|------------------|-----------------|--------------------|----------------|-----------------|--------------|---------------|----------------|--------|
| D2600-1-190 | | Manufactured | No | | | 110 | Each | 32.0000 | 1 | 1 | | 10-7-20 | |
| Extrusion Round 3" 206 | | | | | | | <u>Location</u> | <u>Loc Qty</u> | <u>Loc Code</u> | | | | |
| | | | | LG | 47575 | 110 | 32 | 32 | | | | | |
| D3285-1 | | Manufactured | No | | | | | | 1 | 1 | | | |
| Cap | | | | | | | <u>Location</u> | <u>Loc Qty</u> | <u>Loc Code</u> | | | | |
| | | | | LG | 52511 | 150 | 149 | | | | | | |
| | | | | | 52647 | | 74 | | | | | | |
| | | | | | | | 75 | | | | | | |
| D3282-041 | | Manufactured | No | | | | Each | 9.0000 | 1 | 1 | | 86 10/07/20 | |
| Float Web (206L/407) | | | | | | | <u>Location</u> | <u>Loc Qty</u> | <u>Loc Code</u> | | | | |
| | | | | LG | 59886 | | 9 | | | | | | |
| | | | | | | | 9 | | | | | | |

| W/O: | | WORK ORDER CHANGES | | | | | | | |
|------|------|--------------------|--|--|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | | | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
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| | | | | | | | | | |

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | | |
|------|------|----------------------------------|--------------------------------|---------------------------------|----------------|--|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | | |
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| | | | | | | | | | |

NOTE: Date & initial all entries

Work Order ID 60607

Page 10

Thursday, July 15, 2010 10:24:08 AM

Item ID: D206-642-541

Accept



Setup Start



Revision ID:

Item Name: Replacement Skidtube

Stop



Start Date: 7/15/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 7/22/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan:

Date:

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

290

Identify as per dwg & Stock Location:

0.00



Packaging

Memo

PPP
60607

0.00

July 15/10 C

300

QC21- Final Inspection - Work Order Release

0.00



QC

Memo

0.00

10/09/13 JJ
10/09/13

Quality Control

| | | | | | | | | | |
|------|------|--|--|--|----|------|-----|-------------------------------------|--------------------------|
| W/O: | | WORK ORDER CHANGES | | | | | | | |
| DATE | STEP | PROCEDURE CHANGE | | | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | |  Accept | | | | | | | |
| | | | | | | | | | |

Part No: _____ PAR #: _____ Fault Category: _____ SPC (Y/N): _____ NCR: Yes No DQA: _____ Date: _____
 Resolution: _____ Disposition: _____ Run Hours: _____ Set Up: _____ QA: N/C Closed: _____ Date: _____

| | | | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
| | | | 00.0 | Non - Work Order Release | | | | |
| | | | 00.0 | | | | | |
| | | | | | | | | |

NOTE: Date & initial all entries

Work Order ID 60607

Page 9

Thursday, July 15, 2010 10:24:08 AM

Item ID: D206-642-541

Accept



Setup Start



Revision ID:

Item Name: Replacement Skidtube

Stop



Start Date: 7/15/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 7/22/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals:

Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInspec.
Stamp

270



HandFinish

HAND FINISHING RESOURCE #1

0.00

2) Mil 10/09/08

0.00

Hand Finishing

Memo

✓ 1-Install wearpads & gaskets as per Dwg D3274.
 ✓ A/R Sikaflex-291 11/15/10
 Sikaflex expire date: 11/10

✓ 3-Inspect for foreign objects as per QSI 024

4-Spray inside of tube on both sides of web with LPS-3
 A/R LPS-3 Batch: 10/11

✓ 5-Install Aft Cap and seal with Sikaflex. Clean excess adhesive.
 A/R Sikaflex-291 11/15/09
 Sikaflex expire date: 11/10

280



QC

QC5- Inspect part completeness to step on W/O

0.00

S 10/09/09

0.00

Quality Control

Memo

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
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Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
 Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
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NOTE: Date & initial all entries

Work Order ID 60607

Thursday, July 15, 2010 10:24:08 AM



Page 8

Item ID: D206-642-541

Accept



Setup Start



Revision ID:

Item Name: Replacement Skidtube

Stop



Start Date: 7/15/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 7/22/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run

Start



QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

240



QC

Quality Control

QC3- Inspect Part Finish

0.00

→ ~~BR~~ 10/09/08

0.00

1

d

250



HandFinish

HandFinishing

0.00

0.00

→ M 10/09/08

x

X

Hand Finishing

1-Install Nut Plate as per Dwg D3274. Apply LPS-3 to Nut Plate and rivets.
A/R N/A LPS-3 11/09/082-Install inserts as per Dwg D3274. Use a drop of Sikaflex inside insert holes a
A/R Sikaflex-291 11/09/08
Sikaflex expire date: 11/01

260



QC

Quality Control

QC5- Inspect part completeness to step on W/O

0.00

0.00

→ 10/09/08

(+)

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
 Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
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NOTE: Date & initial all entries

Work Order ID 60607

Page 7

Thursday, July 15, 2010 10:24:08 AM

Item ID: D206-642-541

Accept



Setup Start



Revision ID:

Item Name: Replacement Skidtube

Stop



Start Date: 7/15/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 7/22/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: _____

Date: _____

Tooling: _____

Date: _____

Run Start



QC: _____

Date: _____

SPC (Y/N): _____

Date: _____

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

210

QC10- Inspect visual per QSI004- ground welds

0.00

S10804



QC

Quality Control

220

Pressure Wash per QSI005 4.3

0.00



HandFinish

Hand Finishing

Memo

0.00

✓ Re-alodine tube as per QSI 005 section 4.1.2.1 do not acid etch

M 10/08/25

1 8

230

White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum

0.00



Powdercoat

Powder Coating

Memo

0.00

START TIME: 2:00p ~
OVEN TEMPERATURE: 320 °F
FINISH TIME: 2:30p ~

M 10/08/25

1 8

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
 Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
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| | | | | | | | | |

NOTE: Date & initial all entries

Work Order ID 60607

Thursday, July 15, 2010 10:24:08 AM



Page 6

Item ID: D206-642-541

Accept



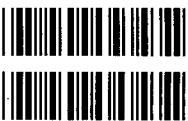
Setup Start



Revision ID:

Item Name: Replacement Skidtube

Stop



Start Date: 7/15/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 7/22/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberReject
NumberInsp.
Stamp

190



Skidtubes

0.00

Skidtubes

Memo
1-Insert D2649 & D3275-1 crossbolt spacers. Weld as per QSI 004 and Dwg D3274. Remember to back drill each hole before welding the other side. Use aluminum rod

A/R Aluminum Rod M112507

3-Grind cross bolt welds flush as per Dwg D3274.

4-Counterbore 5/16" x 0.750" deep as per Dwg D3274 and deburr.

BE 10/07/29
3 BE 10/08/03

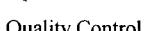
200



QC5- Inspect part completeness to step on W/O

0.00

QC



Memo

0.00

S10108104

XO

Quality Control

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
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| | | | | | | | | |

NOTE: Date & initial all entries

Work Order ID 60607

Thursday, July 15, 2010 10:24:08 AM



Page 5

Item ID: D206-642-541

Accept



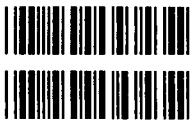
Setup Start



Revision ID:

Item Name: Replacement Skidtube

Stop



Start Date: 7/15/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 7/22/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

170



Skidtubes

0.00

Skidtubes

Memo

0.00

1-Bend AFT end of tube using bend prog. D3274 AFT as per dwg D3274. Install drop pins in crossbolt spacer holes to maintain web position.

MD 10° x 28

Skidtubes

2- DRILL PILOT HOLES FOR WEARPLATES USING D3274-1T2
OPEN HOLES TO .297". Deburr*3**SE 10/7/28*3-DRILL TOE PIN HOLE .640" DIA AS PER DWG USING DT8935 FWD
END OF TUBE
DEBURR INSIDE OF HOLE AS NECESSARY (DO NOT ENLARGE HOLES)
REMOVE ANY FOREIGN OBJECTS INSIDE OF TUBES

180



QC

Quality Control

QC5- Inspect part completeness to step on W/O

0.00 *h = 3.26"*

Memo

0.00 *L = 4.7"**S 10/7/28**①*

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
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| | | | | | | | | |
| | | | | | | | | |

NOTE: Date & initial all entries

Work Order ID 60607

Thursday, July 15, 2010 10:24:08 AM



Page 4

Item ID: D206-642-541

Accept



Setup Start



Revision ID:

Item Name: Replacement Skidtube

Stop



Start Date: 7/15/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 7/22/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan:

Date:

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberReject
NumberInsp.
Stamp

150



Skidtubes

0.00

Skidtubes

Memo

0.00

1-Open 0.0.313" and 0.375" crossbolt spacer holes using DT8743 as per Dwg
D32742-Deburr crossbolt spacer holes as per Dwg D3274 and blow out chips from
inside the tube3-Bond web in place as per Dwg D3274 & QSI 015.
A/R Sikaflex-291 11/15/14 Sikaflex expire date: 11/11/30Start: 10/17/14 Time: 8:30 AMFinish: 10/17/14 Time: 10:00 AM

(Adhere for 12 hours)

M 10/17/14

160



QC

QC5- Inspect part completeness to step on W/O

0.00

Quality Control

Memo

0.00

Skidtubes

(4)

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|---------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval- QC Inspector |
| | | | | | | | |
| | | | | | | | |

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
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| | | | | | | | | |

NOTE: Date & initial all entries

Work Order ID 60607

Page 3

Thursday, July 15, 2010 10:24:08 AM

Item ID: D206-642-541

Accept



Setup Start



Revision ID:

Item Name: Replacement Skidtube

Stop



Start Date: 7/15/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 7/22/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

120



Chemical Conversion Coat per QSI005 4.1

0.00

1 10/17/26

HandFinish

Memo

0.00

Hand Finishing

130



QC3- Inspect Part Finish

0.00

S 10/07/26

QC

Memo

0.00

Quality Control

140



QC5- Inspect part completeness to step on W/O

0.00

S 10/07/26

QC

Memo

0.00

Quality Control

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
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NOTE: Date & initial all entries

Work Order ID 60607

Thursday, July 15, 2010 10:24:08 AM



Page 2

Item ID: D206-642-541

Accept



Setup Start



Revision ID:

Item Name: Replacement Skidtube

Stop



Start Date: 7/15/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 7/22/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan:

Date:

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

110



Skidtubes

0.00

Skidtubes

Memo

0.00

****VERIFY AND INSPECT THE MATERIAL PRIOR TO USE****

1- Bend FWD end of tube using bend prog D3274 FWD and foilo 10 as per dwg D3274, cut fwd end of tube with saw table setup D3274.

2- remove fwd indexing ridge as per dwg D3274. Prepare for welding

3- weld fwd cap as per dwg D3274 and QSI004

AR Aluminum Rod Batch: M112507 / M114242 BE 10/07/21

4- grind fwd cap weld on top surface only

BE 10/07/21

5- Cut AFT end of tube at 170.9" as per dwg D3274 and deburr end.

6-Drill Aft cap pilot hole using DT8025

7-Cleco DT8025 in position and install pilot hole drill Jig DT8742A,B,C,D.
Drill 3/16" pilot holes as per Dwg D3274

8 -Remove inner indexing ridge on aft end of skidtube as per Dwg D3274 scribe batch #

9 -Open aft end cap holes to Ø0.208" as per Dwg D3274. Deburr aft end.

10-7-20

BE 10/07/21

BE 10/07/21

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
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NOTE: Date & initial all entries

Work Order ID 60607

Thursday, July 15, 2010 10:24:08 AM



Page 1

Item ID: D206-642-541

Accept



Setup Start



Revision ID:

Item Name: Replacement Skidtube

Stop



Start Date: 7/15/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 7/22/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan:

RF

Date: 10-7-15 Tooling:

Date:

Run Start



QC:

Date: SPC (Y/N):

Date:

Stop



| Sequence ID/ Work Center ID | Operation Description | Set Up/ Run Hours | Tool ID | Tool # | Plan Code | Accept Qty | Reject Qty | Reject Number | Insp. Stamp |
|--------------------------------|--------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|
| Draw Nbr | Revision Nbr | | | | | | | | |
| D3274 | D | | | | | | | | |
| IIN-D206-642 | Rev M | | | | | | | | |

100

0.00



DOCUMENT CONTROL

DC

Memo

0.00

Document Control

Photocopy bluefile & type labels per PPP D206-642-541

CHG003

N/A